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ABSTRACT

This study examined the value of the Read-Encode-Annotate-Ponder (REAP) procedure as a teaching/learning strategy, focusing on its use of written annotations designed to achieve specific learning objectives. Subjects were 105 students in six college reading/study skills classes who were assigned to one of three treatment conditions: the experimental group learned and practiced the use of the REAP procedure; the experimental-control group learned and practiced another reading/study skills strategy; and the control group developed "affective readiness" for reading/study skills improvement, and learned and practiced study skill areas not directly related to study-reading or comprehension improvement. The study's results show that the experimental group did learn the REAP strategy and improved their test scores when employing the strategy, and that students with impulsive cognitive styles profited from the REAP strategy, probably because REAP requires a period of reflection (the annotation procedure) that impulsive students do not normally use in their reading/study tasks. But the study fails to provide evidence that the REAP strategy is more effective than the strategies of the other treatment conditions. (RL)

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An Investigation of the REAP Reading/Study Procedure: Its Rationale and Efficacy

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The REAP procedure, a teaching-learning strategy developed within the framework of the LICA (Languaging in the Content Areas) Thesis, (Manzo and Sherk, 1977) is designed to improve reading, writing, and study. The focus of this study is upon advancing the design of the strategy and assessing various aspects of its use as a reading/study procedure within the setting of a college reading improvement course.

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Description of the REAP Procedure

The REAP Reading/Study Procedure has four basic steps. The student is asked to:

R — Read to discover the writer's message.

E — Encode the message by putting it into his own language.

A — Annotate by cogently writing the message in notes for himself or in a thought book to share with others.

P — Ponder, in other words, process the message, now in annotation form, through internal "dialectic thinking" or through discussion with others.

Central to the REAP procedure is having students learn to write annotations specially designed to achieve certain learning objectives (Manzo, 1973). In writing such annotations, the reader is required to discriminate and synthesize the ideas presented by the writer, translate these into his own language, and crystallize the result in writing.

Seven annotation forms have been developed in working with the procedure: summary, thesis, question, critical, heuristic, intention, and motivation annotations. Some annotations are more suitable to some types of writing than are others (Eanet and Manzo, 1976). The present study with its emphasis on study reading utilized the first four most frequently.

The paradigm for teaching the annotation forms, while hardly unique, is a integral part of the teaching-learning strategy. Briefly, it requires the teacher to lead students through four steps. Step One teaches them to recognize and define the specific annotation being taught. Step Two requires discriminating an exemplary annotation among less desirable alternatives. In Step Three, students work through the thinking-writing processes with the teacher's thinking strategies and writing efforts as models. Step Four is the practice step and involves practice first in a relatively non-threatening and process-reinforcing group setting and then individual production of annotations (Eanet and Manzo, 1976).

Rationale

The theoretical rationale for the REAP procedure begins with the LICA Thesis and finds a supportive base in several related areas of research in reading and learning.

The Read-Encode-Annotate steps of the procedure require a reader to work through in language an experience with the ideas and language of the author; i.e., they require "languaging." Further, the process establishes a special type of dialectical thinking — an interaction between the learner and the ideas and information that the author has presented. The reader must reconcile into clear patterns of thought those ideas and information in order to construct his own written response.

It follows, as outlined in the guiding precepts of the LICA Thesis, that information and ideas thus gained should be more deeply learned and transferable; they can be "pondered" and applied. The intense efforts that applying the procedure requires result in more effective learning. The learner who reads to REAP does so with focused attention and specific intention, both powerful forces in learning; he harvests a concise and coherent addition to his fund of knowledge.

Gagne (1973), among others, has hypothesized that presenting a learner with a specific learning task (for example, the charge to annotate) activiates a "set" within him that determines the "strategies" with which he approaches the material he is to read. He concludes that these strategies of "search, selecting, and coding" in large measure determine what the learner will retain.

Supporting evidence for the existence of these strategies and their manipulatability is plentiful. Anderson and Biddle (1975), in their comprehensive review of adjunct questions, find the explanation that such questions effect performance "by influencing the processing activities of readers" most persuasive.

Other task variables which have been shown to effect prose learning include instruction objectives or goals (Kaplan and Simmons, 1974; Gagne and Rothkopt, 1975), student-generated questions (Frase and Schwart, 1975), payoff conditions (McConkie and Rayner, 1974; Carver, 1975), and a combination of payoff conditions and feedback (McConkie and Meyer, 1974). Frederiksen's study (1972) of "task induced cognitive operations" and prose learning provides further evidence of differential learning depending upon assigned task.

The use of an overt, constructed response as a productive learning task finds some support in studies of adjunct questions (Anderson and Biddle, 1975) and programmed learning (Williams, 1963 and 1965), although in the studies reviewed, the responses were not as complex as are the REAP annotation forms. A further note of caution came from early investigations of study-reading which involved precise or summary writing and failed to show support for such an approach (Germane, 1921; Mathews, 1938; Arnold, 1942; Stordahl and Christensen, 1956).

A major question arising from close examination of many of these studies is whether the learning tasks and the strategies they induce actually reflect an increase in the quality of study or whether their effectiveness lies in their ability to increase quantity of study by lengthening the time spent inspecting and reflecting upon the material to be learned. In the absence of persuasive evidence either way, inspection time was controlled in the present study.

This study, then, focuses upon the teaching and use of a reading/study procedure in which the central feature is a learning task -- writing annotations -- presumed to have a positive effect upon the reader's learning strategies and thus upon his reading effectiveness. It was conducted as a teaching experiment in a natural setting and centered upon three major issues: 1) the experimental subjects' degree of success in learning and using the procedure, 2) how such learning interacted with the subjects' tendency toward a reflective or impulsive cognitive style, and 3) how subjects trained in the REAP procedure compared with control group subjects on several measures of learning from specific prose passages.

Method and Procedures

Subject involved in the study were 105 students enrolled in a college reading and study skills class at the University of Missouri-Kansas City. Each of the six sections of the class were randomly assign to one of three treatment conditions. The experimental group received instruction and practice in the use of the REAP procedure. The experimental-control group received instruction and practice in using the SQ3R Procedure and related skills practice. The control group received instruction centered upon developing "affective readiness" for reading/study skills improvement followed by instruction and practice in study skills areas not directly related to study-reading or comprehension improvement. Each group received four weeks of instruction with the experimenter serving as instructor.

During the first week of the semester, all groups received the Nelson-Denny Reading Test and the Reading Practices Mini-Inventory, an informal measure of reading/study habits. From these measures, it was determined that the groups did not have statistically significant differences in either basic reading achievement or in reading/study habits.

Within the experimental group, measures were taken to determine the students' progress in mastering and using the REAP procedure. These students were also administered the adult version of the Matching Familiar Figures Test, as used

by Kando and Kagan (1968), to determine their tendencies toward impulsive or reflective behavior. This cognitive style variable was examined for its relationship to the use and learning of the procedure.

A two by three factorial design with repeated measures on the first factor was employed to examine the experimental subjects' ability to write annotations before and after instruction across the three levels of the cognitive style dimension -- impulsive, undetermined, and reflective.

During the sixth week, six posttest measures were used to examine what all subjects learned from reading in two specific reading/study situations. Two measures involved written recall of significant ideas in an informative article 1) immediately following a fifteen minute reading/study period and 2) forty-eight hours later. Two objective recognition tests, based upon the same selection, were administered following the delayed recall test. Then, a short philosophical essay was used to elicit two written reflective responses from each subject. All written responses were coded, randomized, typed, and judged against previously established criteria.

Finally, all subjects responded anonymously to a self-assessment questionnaire design to determine how useful they perceived their instruction to be and how frequently they were using what they had been taught.

A posttest only control group design was used for the comparative portion of the study.

Results

A two-way analysis of variance for repeated measures was performed on the annotation writing pretest and posttest scores with the cognitive style groups serving as the second factor. Scores on the post measure were significantly higher than those on the pretest, F (1, 29) = 21.42, $p < .001$, with the subjects obtaining a mean score of 17.63 on the pretest and a mean score of 23.69 on the posttest.

On the second factor, the cognitive style variable, no statistically significant difference was revealed; nor was there a significant interaction. However, an examination of the mean scores for each cognitive style group reveals that the impulsives showed the most improvement in annotation writing with a pretest to posttest difference score of 6.7, while the relective subjects showed on a 3.9 point improvement.

Data from the six measures designed to compare the experimental (REAP) subjects to the experimental-control (SQ3R), and control subjects in learning in specific reading/ study situations were subjected to a one-way analysis of covariance with the Nelson-Denny Reading Test total scores as covariant. Only one statistically significant difference was found: on the test of immediate recall. A Scheffe multiple

comparison procedure applied to the adjusted means determined that the difference lay between the control and the experimental-control groups. Examination of the mean scores on all six measures revealed that, in general, the control group made the highest scores, followed by the experimental (REAP) subjects, and then the experimental-control (SQ3R) subjects.

No significant differences were found among groups on the student self-assessment questionnaire. All groups tended to "Agree Somewhat" that the instruction they received had been helpful. Further, they reported using what they had been taught either "sometimes" or "frequently."

Conclusions and Discussion

College reading improvement students were successful in learning to write the annotation forms central to the REAP procedure. Further, the experimental subjects, as indicated by self-report, found the instruction in the REAP procedure helpful and tended to incorporate it into their study as frequently as their peers did more tradition instruction.

Further, based on an examination of the mean scores, there was some indication that students who demonstrate an impulsive cognitive style may profit most from instruction in the procedure, perhaps because it requires a degree of reflection that they do not typically bring to reading tasks.

However, this study fails to provide evidence that the learning and use of the procedure helped subjects achieve more effective learning from prose when compared to subjects who received other training and when reading/study time was controlled. Its perceived helpfulness may lie, not in any tendency to increase quality of study, but rather in increasing inspection and reflection time.

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